Volume 7 No. 1 Spring 2005

# Noxious Times

*A Quarterly Publication of the California Interagency Noxious Weed Coordinating Committee*

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## Welcome New Weed Management Areas

The number of countywide Weed Management Areas (WMAs) in California has grown from seven in early 1998 to cover the entire state in 2005. Seven WMAs have recently joined the ranks or redrawn their boundary lines:

**Low Desert WMA**

**Mattole Cooperative WMA**

**Napa County WMA**

**Santa Ana River and Orange County WMA**

**Humboldt - Del Norte WMA**

**Mendocino Coast WMA**

**Ventura County WMA**

These groups are accruing many important benefits and accomplishments by coordinated control actions, weed education, and public awareness efforts. However, to set up their coordinated weed control programs, WMAs are now dependent on outside funding from a variety of sources. If you live in or near these Weed Management Areas, please contact the WMA coordinators and find out how you can get involved.

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## Incentives Programs: WHIP & EQIP

By Jessica Harris, CSU Chico

Each year, the US Department of Agriculture strives to offer farmers, ranchers and conservation groups the opportunity to help create, restore and develop wildlife and farming habitat. Two of the programs, the Wildlife Habitat Incentive Program (WHIP) and the Environmental Quality Incentives Program (EQIP), help landowners, farmers and ranchers improve the quality of the environment and their own land. These programs are intended to provide financial incentives to get a landowner started on conservation practices – long term maintenance is not part of the deal, and obviously invasive weed control is a long term project.

The Wildlife Habitat Incentive Program, which began in 1998, is voluntary and encourages the creation of high-quality habitats that support significant wildlife populations. Over the years, more than 14,000 participants have worked through the USDA and the Natural Resources Conservation Service (NRCS) to develop upland, wetland, riparian and aquatic habitat areas on their property. The Wildlife Habitat Incentive Program has helped create habitat for salmon, acorn woodpeckers and the Karner-blue butterfly, along with many other species.

After being accepted, participants worked with the NRCS to create, develop or revise a wildlife habitat development plan. This plan is the cornerstone of the WHIP program as well as a cost-share agreement between the NRCS and the

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# CINWCC Chairperson
## Bobbi Simpson, National Park Service

By Gina Skurka, CDFA

Photo by Dan Gluesenkamp

**Bobbi Simpson, Catalina Island, CA**

I had the privilege and the pleasure of spending a weekend retreat camping with the California Invasive Plant Council Board of Directors, which included CINWCC Chair, Bobbi Simpson. In her soft, South Carolina accent, Bobbi adds wisdom and experience to discussions, and everyone listens when she talks. In the evening, the group huddled around the campfire roasting marshmallows, while Bobbi told some great stories complete with her full and hearty laugh. She was born in South Carolina and lived for a time in New Orleans, where she worked for an artist making furniture and sculptures. Bobbi has been with the National Park Service for 19 years, worked with seven national parks and is currently serving as Liaison for the California Exotic Plant Management Team based out of Point Reyes National Seashore. In the morning, while we waited for the jeeps to pick us up at the campsite, I was able to sit with Bobbi and talk more about her experiences in California.

Bobbi sees one of the biggest obstacles to protecting the National Parks from invasive plants being that the agency is still in its infancy with regard to fighting weeds. About five years ago, an initiative called the Natural Resource Challenge brought funds to develop exotic plant management teams, and now there are 16 teams across the country. The *Challenge* has created a momentum that is propelling the Park Service forward on the subject of invasive species management, but Bobbi feels, "We still have a ways to go before we can see the light." There is clearly a need to integrate resource conditions and activities into programs that have long-term vision. Several parks are committing the resources necessary to carry this out. Yosemite National Park is in the process of developing an invasive species management plan that will probably take four years. On the other end of the spectrum [in terms of park focus and size], Cabrillo National Monument is starting its planning process. It is anticipated this will take two to three years. On the national level, the Park Service has just completed its first five-year strategic plan, and the Park Service anticipates the second five-year strategic plan will be completed by the end of this calendar year. Bobbi sees these planning documents that are coming forward as a great sign that managers want to ensure that the issues and scope of the weed problems facing parks are managed from an established, well-thought-through context.

According to Bobbi, the best part about her job is watching her staff gain career experience and skills. Another amazing and fulfilling part of her job is the opportunity to work with 12 extraordinary parks. When I asked Bobbi where she'd like to see CINWICC in the future, she responded, "I'd like to see CINWCC focus on one or two items, and to clarify ways we can work together on projects. The questionnaire at the last meeting revealed that most people are interested in focusing CINWCC's efforts on education. I'd like to see us produce something useful to all agencies." ◈

Noxious Times is a publication of the **California Interagency Noxious Weed Coordinating Committee** (CINWCC). The committee was formed in 1995, when 14 federal, state, and county agencies came together under a Memorandum of Understanding to coordinate the management of noxious weeds. The committee's mission is to facilitate, promote and coordinate the establishment of an Integrated Pest Management partnership between public and private land managers toward the eradication and control of noxious weeds on federal and state lands and on private lands adjacent to public lands.

The Noxious Times newsletter intends to help the committee achieve its goals of coordination and exchange of information by providing land managers throughout the state with information on weed control efforts, news, and successes.

Noxious Times is published quarterly by staff of the Integrated Pest Control Branch at the California Department of Food and Agriculture. We welcome submissions for our upcoming issues. Please send to: CA Department of Food and Agriculture, ATTN: Noxious Times, 1220 N Street, Room A-357, Sacramento, CA 95814 or e-mail: noxtimes@cdfa.ca.gov.

If you have a colleague whose name you would like to add to our mailing list, please send mailing information to the address above.

Noxious Times Editorial Staff: Steve Schoenig, Gina Skurka, and Clare Aslan. Text written by staff unless otherwise noted.

## CINWCC Signatory Agencies and Representatives

California Agricultural Commissioners and Sealers Association
Mary Pfeiffer (530) 224-4949
California Department of Food and Agriculture
Larry Bezark (916) 654-0768
Steve Schoenig (916) 654-0768
California Department of Transportation
Sheree Edwards (916) 654-5784
California Resources Agency
Susan Ellis (916) 445-9992
California State Parks
Cynthia Roye (916) 653-9083
Department of the Army, U.S. Corps of Engineers, South Pacific Division
Phil Turner (415) 977-8058
U.S. Department of Agriculture, Natural Resources Conservation Service
Dave Dyer (209) 727-5319
U.S. Department of Agriculture, Animal and Plant Health Inspection Service
Dan Hamon (916) 857-6258
Carolyn Pizzo (916) 857-6272
U.S. Department of Agriculture, Forest Service
Cheri Rohrer (415) 705-2545
U.S. Department of Defense, Air Force
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U.S. Department of Interior, Bureau of Indian Affairs
Dale Morris (916) 978-6051
U.S. Department of Interior, Bureau of Land Management
Diana Brink (916) 978 4645
John Willoughby (916) 978-4638
U.S. Department of Interior, Bureau of Reclamation
Michael Nepstad (916) 978-5041
U.S. Department of Interior, Fish and Wildlife Service
Sam Johnson (360) 696-7621
U.S. Department of Interior, National Park Service
Bobbi Simpson (415) 464-5294

## Active Stakeholders

California Association of Nurserymen and Garden Centers
Bob Falconer (800) 748-6214 (ext. 17)
California Cattlemen's Association
Ken Zimmerman (562) 866-1400
California Invasive Plant Council
Doug Johnson (510) 843-3902
California Native Plant Society
Bob Case (925) 689-6528
Don Mayall (650) 856-7579
The Nature Conservancy
John Randall (530) 754-8890
U.S. Department of Agriculture, Agricultural Research Service
Ray Carruthers (510) 559-5800
Joe Balciunas (510) 559-5975
University of California
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# CINWCC Updates

February 4, 2005

**Attendees:**

Bobbi Simpson, NPS
Lia McLaughlin, USFWS
Susan Ellis, CDFG
Cynthia Roye, Ca State Parks
Nancy Brownfield, East Bay Regional Parks
Eileen Theile, East Bay Regional Parks
James Rathke, CalTrans
Steve Schoenig, CDFA
Mary Pfeiffer, CACASA
Carolyn Pizzo, APHIS
Jake Sigg, CNPS
Gina Skurka, CDFA
Doug Johnson, Cal-IPC
Elizabeth Brusati, Cal-IPC
Bob Case, CNPS
Barbara Cooper, USACE
Cheri Rohrer, USFS

**General Discussion Regarding Future of CINWCC – Bobbi Simpson**
Bobbi passed out a questionnaire, which was discussed throughout the meeting, to help identify several needs for the group. Some ideas were:

- Need for better connection between CINWCC and WMAs
- Need a list of weed contacts in agencies – produce directory
- Need to update the CINWCC website
- Need to update the MOU and reassess goals for the group
- Get an updated list of agencies onboard

Bobbi announced the Chair of CINWCC is up for grabs after her term, which technically ends this year.

**Agency reports** – in response to the questionnaire, there was a general feeling that NGO participation in CINWCC is very valuable and education is key to getting the most accomplished with the least amount of money. CINWCC is valuable as a source of networking and information sharing, but needs to work on communication with agencies.

- CA Dept of Food and Ag – State Weed Action Plan - waiting for a letter from the governor and finalizing contract with printer to print 2,500 copies. Need endorsements. CDFA/RA cooperation report - need to follow-up to find out where it stands. This could be through Assembly Member Wolk's office, since she authored AB 2631, and through Dennis Albiani in the Governor's office. CDFA currently asking WMAs to update their CalWeed database projects and hosting the CINWCC website. Noxious Times costs approx $30,000 per year and needs funding from CINWCC agencies or it will become a CDFA publication and change emphasis. Currently pursing a grant from Center for Invasive Pest Management to cover publishing cost.
- Army Corps of Engineers – deals with weed issues on a small, local scale; not coordinated. Reported on an internal software program that catalogues nationwide weed projects, "OMBIL".
- CA Native Plant Society – would like to see CDFA Encycloweedia images available for educational presentations and training purposes in a usable format.
- CA Invasive Plant Council– needs to know how it can help to increase visibility of programs within participating agencies, need to educate non weed-specific agencies to take on weed projects.
- CA State Parks – there are 277 park units, currently an effort to identify least impaired watersheds to concentrate management, uses database National Resource Information Management System.
- US Forest Service – reported on new invasive species management strategic plan – very cool but no scientific names?
- Park Service – foster networking opportunity between agencies, move from a 5 person team to a 20 person team, the goal for this season is to work with data from weed project sites to analyze where they were most effective quantitatively.
- APHIS – suggested making success stories and eradication stories known.
- Ag Commisioners – pursuing federal funding for quarantine issues to prevent weed problems.
- East Bay Regional Park District – maintaining 65 parks.

**CALIWAC join with CINWCC**
*Update on CALIWAC* - the California Invasive Weeds Awareness Coalition's goals include supporting legislation to increase funding for weed work, education on federal through public levels, and developing a strategy for a weed management plan. Sent a team to NIWAW and hosted Day at the Capitol.
*Update on CINWCC* - Putting forth an effort on how to make an impact and reduce redundancies among weed groups and weed efforts.

**Next CINWCC Meeting**
Focus on one project – best to pitch the results of a project for money instead of just asking for money. Some discussion ensued regarding Cal-IPC's educational bulletins. Doug will send out brochure to those interested. Do we need an MOU? Next meeting should be in August, date to be announced. ◈

# Invasive Species: Cooperation and Coordination Are Important for Effective Management

**GAO Report to the Chairman, Committee on Resources, House of Representatives**

**February 2005**


The U.S. General Accounting Office (GAO) has issued a report on the current status of invasive weed management. This report arises from a need to determine future weed management resource distribution and a recognition of the federal government's emphasis on agricultural pests to the exclusion of ecological weeds.

Through interviews with federal, state, and local natural area weed management officials, the GAO concludes that enhanced interagency collaboration is essential for effective management of invasives. The report also finds that inconsistent and inadequate funding limits effective weed management in U.S. natural areas.

As the Noxious Weed Control and Eradication Act of 2004 requires that the Secretary of Agriculture establish a new program to confront invasive weeds, the findings of the GAO report suggest that this new program include education, prevention, early detection and rapid response, control, monitoring, and research activities.

The complete report can be accessed online at http://www.gao.gov/cgi-bin/getrpt?GAO-05-185. ◈

# Welcome New Weed Management Areas

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As the years pass, noxious weed populations continue to grow unless a landowner has the motivation, money, equipment, and knowledge to control them. Since so many private parties and groups have a vested interest in the control of the spread of noxious weeds, they have often times gathered together to discuss their weed problems, define the extent of infestations, and team up on the control or eradication of those weed populations.

Due to lack of funds at the county level, especially in rural parts of the state, landowners and agencies had been losing ground to the spread of noxious weeds. Realizing this fact, in 1998 Governor Davis signed legislation (AB 1168, Frusetta) authorizing the Noxious Weed Management Fund within the Californinia Department of Food and Agriclulture (CDFA), providing sufficient funding to develop pilot weed management programs in several counties. In addition, Senate Bill 1740 (Leslie) provided $5 million for controlling noxious weeds. These bills totaled $5.6 million over a period of six years for weed control funding, which expired in 2004.

California has an exciting and effective tool to combat noxious weeds: the Weed Management Areas (WMAs). WMAs are local organizations that bring together landowners and managers (private, city, county, state, and federal) in a county, multi-county, or other geographical area to coordinate efforts and expertise against common invasive weeds. The WMA functions under the authority of a mutually-developed Memorandum of Understanding (MOU) and is subject to statutory and regulatory weed control requirements. A chairperson or a steering committee may voluntarily govern a WMA. Weed Management Areas are unique because they attempt to address agricultural weeds and wildland weeds under one local umbrella of organization. The WMAs have printed weed I.D./control brochures, organized weed education events, written and obtained grants, coordinated demonstration plots, and instituted joint eradication, mapping, outreach, and other effective weed management projects.

**Mendocino Coast WMA – Tara Athan and Peter Warner**

Coastal watersheds in Mendocino and Sonoma Counties have experienced 150 years of agriculture, timber harvesting, and rural and urban development, which has resulted in increased vehicle traffic, soil disturbance, and alteration of ecosystem processes. With the introduction of invasive non-native plants (weeds) and increased opportunities for seed dispersal, widespread infestations have occurred in these watersheds.

The Mendocino Coast WMA (MCWMA) was initiated by State Parks and is comprised of the coastal area of Mendocino and Sonoma Counties between (but not including) the Russian and Eel River watersheds, covering about 1,000 square miles of coastal watersheds of Mendocino and Northern Sonoma Counties in California. The immediate goals of the MCWMA are the treatment and control of invasive plants from specific sites within coastal watersheds, especially those that have been prioritized as threats to sensitive habitats, and private and public lands that provide wildlife habitat and migratory corridors.
Agencies represented in the MCWMA include the Natural Resources Conservation Service and CA Depts. of Parks and Recreation, Transportation, Forestry and Fire Protection, and Fish and Game. From Mendocino County, the Agricultural Commissioner, Dept. of Transportation, Solid Waste Management Division and the Resource Conservation District are also represented. Other organizations and institutions represented include the CA Native Plant Society, College of the Redwoods, the Mendocino Coast Audubon Society, the Mendocino Land Trust, and the CA Invasive Plant Council. Interests of the timber industry are represented by the Campbell Group, Inc. Community volunteers and land managers round out the group. A steering committee meets monthly and has drafted a Memorandum of Agreement and submitted several grant proposals.

Contact: Tara Athan, Coordinator, MCWMA, tara_athan@safe-mail.net, P.O. Box 415, Redwood Valley, CA 95470, (707) 485-1198.

**Napa County Weed Management Area – Vicki Kemmerer**

The Napa County grape growers and the Napa County livestock people share some common goals – the prevention, control, and elimination of noxious weeds. In Napa County, the Agriclutural Commissioner's office has identified some noxious and quarantine rated weeds. Some of the noxious weeds of which Napa has considerable acreages, are pampas grass, tamarisk, purple and yellow starthistles, arundo, broom, horsenettle, and pepperweed. Napa also has found and continues to fight infestations of rush skeleton weed and Iberian starthistle. In order to work on the eradication of rush skeleton weed, the Napa County Agricultural Commissioner includes Cal Trans, a local vineyard owner, the Napa County Flood Control District, the Wine Train, California Department of Forestry, Napa County Fire Department, Bay Area Air Quality Control, and Mosquito Abatement.

In order to make it easier to identify Napa's weed problems, share information, and to qualify for grants and other funding, the Napa County Agricultural Commissioner hosted an initial Weed Management Area formation meeting on Wednesday, January 12, 2005. The Napa County Weed Management Area now has a steering committee and has held a second general meeting. The Napa County WMA is currently working on a Memorandum of Understanding, while providing educational meetings for the general membership.

Contact: Vicki Kemmerer, Deputy Agricultural Commissioner, vkemmere@co.napa.ca.us.

## A Weed Warrior's Perfect Verb

*by Gina Skurka*

In 1548,
Used still to this day,
Derived from the Latin
*Eradicáre*,

"Eradication,"
A commonplace word,
Made its first appearance
As an English verb.

To broadly suggest
"As if down to the roots,
Destroy it completely,"
But the meaning dilutes.

This Latin coinage
Literally means
"To pull out by the roots"
From *e-* plus *radiz* ***.

Now, in lieu of an imprecise modifier,
However befitting it may seem,
Know your roots and speak with pride.
Say what you mean!

*** from *e-* (out) + *radiz* (root).

Photo courtesy Tara Athan

**French Broom along a roadside in Jackson Demonstration State Forest.**

**Low Desert WMA – Sam Cobb and Russell Scofield**

Currently the Low Desert Weed Management Area boundary includes the desert portions of Riverside and San Diego Counties. The boundary may change in the future. The goals for the WMA are to educate, prevent, map, and control invasive weeds in cooperation with the Imperial WMA. The primary weeds of interest are tamarisk and Saharan mustard, two flagship weeds, as well as fountain grass and arundo. The Low Desert Resource Conservation and Development (RC&D) has a separate agreement with tribes, the Bureau of Land Management and the Forest Service for weed management in Santa Rosa National Monument, which they will coordinate with the Low Desert WMA. Other large watershed projects include land acquisition and tamarisk control, which could become WMA projects. The RC&D has other tamarisk control projects throughout the region not currently coordinated with other agencies, and may coordinate with the WMA.

The Low Desert WMA had a good first meeting on April 7, 2005. Several agencies participated and committed to going forward with the Low Desert WMA project. Being early in the process, the strategy is to draft a Memorandum of Understanding and take it to Imperial County to find out how they can participate. The next meeting will be on June 7 when the WMA will discuss their lengthy list of potential partners who will have been contacted to sign the MOU.

Contact: Sam Cobb, RC&D, Sam.Cobb@ca.usda.gov.

**Mattole Cooperative Weed Management Area – Chris Larson**

The Mattole Restoration Council has formed a new cooperative weed management area located in southwest Humboldt County for increased awareness of watershed health, ranchland productivity and riparian habitat health. Scotch and other brooms will be a focus of the group, as well as Japanese knotweed, which will be a summer project. The Mattole Restoration Council will facilitate the group along with agencies and private landowners. The Mattole Cooperative WMA is comprised of the 190,000 acre Mattole watershed. The WMA will focus on 1,400 acres of eradication areas within the next five years. The watershed plan for Mattole, developed with private landowners and the Bureau of Land Management, includes a chapter on invasive plants, identifying 14 projects proposed for the next five years.

Contact: Chris Larson, Mattole Restoration Council in Petrolia, (707) 986-1078, chris@mattole.org.

**Ventura County WMA - Peggy Rose**

The Arundo Task Force is in the process of forming a broader Weed Management Area for the County. The Ventura County Weed Management Area (VCWMA) will be countywide, (three primary watersheds, Ventura River, Santa Clara River, Calleguas Creek and all smaller watersheds which drain directly to the Pacific Ocean) and will work closely with the Los Angeles WMA in the upper Santa Clara River, as the watershed is split between the two counties. The Ventura County Resource Conservation District (VCRCD) will be the lead agency for the VCWMA.

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***Incentives*** *continued from front page...*

participant. Depending on the practices that are being implemented, agreements can last anywhere from five to ten years and even longer if needed.

A greater share-of-cost is provided to participants who enter into agreements of 15 years or more. There are also emergency share-of-cost agreements that can be implemented to meet wildlife emergencies, as approved by the State Conservationist. Although the NRCS does not limit the amount of acreage or the payments, each State may have specific guidelines for these criteria. After the completion of projects, the NRCS also helps to keep the habitat healthy by providing continued assistance to landowners through monitoring, review of management plans or general habitat advice. Applications for the WHIP program can be obtained through the USDA website at www.sc.egov.usda.gov. You must first register and open a USDA account.

The Environmental Quality Incentive Program (EQIP) is an opportunity for cooperative collaboration between agriclutural and environmental interests. Through EQIP, the NRCS works closely with farmers and ranchers to promote agricultural production and environmental quality as partners. Unlike WHIP, EQIP is only available on agricultural land, but the program still provides technical and financial assistance to participants to implement or install structural and management practices.

EQIP contracts, designed to carry out the management plan according to environmental quality goals, last a minimum of one year and a maximum of ten years. These contracts end a year after the implementation of the last scheduled practice. Goals are identified by the producer and the appropriate action is then taken as approved by the governing resource conservation district. Your invasive control project may fit the intent of more than one Farm Bill Program.

For questions or more information about the WHIP or EQIP programs, please visit the NRCS website at www.nrcs.usda.gov/programs/farmbill/2002/, or contact WHIP program's Albert Cerna at (202) 720-

# National Invasive Weed Awareness Week VI: A Rousing Success!

The California Invasive Weeds Awareness Coalition's (CALIWAC's) delegation joined groups from across the country in Washington, DC during the sixth annual National Invasive Weed Awareness Week (NIWAW), February 27 – March 4, 2005, sponsored by the Invasive Weed Awareness Coalition, in order to focus national attention on the problems surrounding invasive weeds in the United States. Nelroy Jackson of CALIWAC will step up as the chairman of the 2007 NIWAW organizing committee, as successor to Rob Hedberg, Director of Science Policy at the National and Regional Weed Science Societies in Washington, DC.

Photo Courtesy Dan Gluesenkamp

**Team CALIWAC on Capitol Hill pictured above from left to right: Dan Gluesenkamp, Gina Skurka, Nelroy Jackson, Carri Pirosko, Carl Bell, and Steve Schoenig (Bob Case and Andrea Fox pictured below).**

This year, Team CALIWAC included Nelroy Jackson, Invasive Species Advisory Committee; Steve Schoenig, CDFA and Cal-IPC; Carl Bell, UCCE; Andrea Fox, Farm Bureau; Carri Pirosko, Cal-IPC; Bob Case, CNPS & Cal-IPC; Dan Gluesenkamp, Audubon Canyon Ranch; and Gina Skurka, Cal-IPC; with support during the week from Doug Johnson at Cal-IPC. "While in Washington, DC, we [Team CALIWAC] experienced a DC 'snow emergency,' which consisted mainly of a few inches of snow and double fares for the taxis. However, the bone-chilling winds did not deter us from our task," said Gina Skurka.

Photo by Gina Skurka

**Bob Case entering Rep. Mike Thompson's office carrying a yellow starthistle bouquet.**

Participants, including representatives of government agencies, NGOs, private industry and landowners, spent the week lobbying their state legislators and attending briefings from federal agencies, including the US Department of Agriculture, the Department of Interior, the Environmental Protection Agency and the Army Corps of Engineers.

National Invasive Weed Awareness Week initiated as a meeting with 30-40 participants in 2000. Now, NIWAW has become a small annual conference providing a great opportunity for diverse and numerous organizations interested in invasive weed management to meet with each other, their congressional representatives, and the leaders of the federal agencies who are working to address this problem. There was a record turnout this year continuing the trend of 20% annual growth. The 160 registrants came from 35 states, including Hawaii, the District of Columbia and Alberta, Canada. Also, over one thousand people participated in the Children's Fun Day at the Botanic Gardens. A real partnership has emerged. Bob Case summarized the progress made between 2004 and 2005 as: "Last year the meeting reception was more of 'who are you' and this year, meetings with staffers were more 'we know who you are… what can we (try to) do for you?'"

Approximately 60 total visits were made on Capitol Hill this year, over one third of which were made by Team CALIWAC. The eight members of Team CALIWAC met with 23 legislative staff members to discuss important state and nationwide issues and left information packets for reference. The team also dropped off packets at 30 additional legislative offices, covering more than twice as much ground as in previous years. In 2003, with a team of four, CALIWAC visited 13 offices and dropped information at 16 offices. In 2004, the team of nine visited 14 offices and did not make any drops.

This year's program followed the standard format, with federal agency briefings in the morning. However, higher-level speakers delivered the agency briefings, a significant change because it gives the issue of invasive species higher exposure in the Department of Defense and the Army Corps of Engineers. Tuesday's morning session focused on grant agencies, including an excellent workshop providing a useful handout by the US Department of Agriculture and the Department of Interior, which is available on the web at http://www.cdfa.ca.gov/phpps/ipc/pdf/usdagrants05.pdf. Afternoons were open for scheduling legislative appointments. Team CALIWAC also participated in the National Exotic Pest Plant Council meeting and attended the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW) and NGO meetings, not to mention the rockin' reception at the US Botanic Gardens.

Almost every legislative staff member was interested in signing on to a "Dear Colleague"

Photo by Gina Skurka

**Steve Schoenig and Andrea Fox discuss strategy over breakfast at the Monday morning Kick-off session.**

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**"Last year the meeting reception was more of 'who are you' and this year, meetings with staffers were more 'we know who you are… what can we (try to) do for you?'" ~ Bob Case**

letter of support for full appropriations of the $15 million for weed management entities authorized by the Noxious Weed Control and Eradication Act of 2004. Team CALIWAC drafted that letter while in DC, and it is now circulating around Capitol Hill gathering signatures of support from the California Congressional delegation. The letter was posted on the NIWAW website so other states could use the draft and circulate more letters of support.

At this point, Congressman Hefley (R-CO) is circulating a "Dear Colleague" letter seeking the endorsement of additional House members who will support full funding of this legislation by the Appropriations Committee. If you think your Representatives are supportive of this funding, now would be a very good time to contact them and ask them to endorse Congressman Hefley's Dear Colleague letter. To do so, they should contact Larry Hojo in Congressman Hefley's office at (202) 225-4422.

Photo Courtesy Gina Skurka

**NIWAW VI reception at the US Botanic Garden. From left to right: Miriam Pinsker, Rep. Jim Costa's office; Mary Pfeiffer, Shasta Co. Ag Commissioner; Gina and Carri, Team CALIWAC; and Jerry Howard, Calaveras Co. Ag. Commissioner.**

The next stage in the war against weeds is to get the $15 million appropriated and spent effectively. Then, by showing success stories, there will be a greater chance to ask for authorization back to $100 million. The best chance for the $100 million will be in the president's budget for fiscal year 2007.

For more information, please visit the North American Weed Management Association web page, www.nawma.org, or contact Gina Skurka at gmskurka@cal-ipc.org. ◈

# CA Weed Day at the Capitol II

The second annual Invasive Weed Awareness Day at the Capitol, sponsored and organized by the California Invasive Weeds Awareness Coalition (CALIWAC), was held in Sacramento on March 9, 2005. The day's agenda included a weed control case study, briefings with state agency leaders and meetings at the State Capitol with California legislators and staff. CALIWAC has a mission to support and enhance existing weed control efforts in the state and promote public awareness of invasive weed issues in California. Therefore, CALIWAC strongly believes that continually educating California agencies and legislators regarding invasive plant issues is critical.

Mike Chrisman, Secretary for Resources, and A.G. Kawamura, Secretary, Department of Food and Agriculture, were the keynote speakers for the event. They both emphasized that increased coordination to stop the introduction and spread of invasive species is a top priority for their respective agencies. Ted Jackson, Deputy Chief, California State Parks, also spoke on the issue. Peggy Olofson and Eric Grijalva presented the Coastal Conservancy's San Francisco Bay Invasive Spartina Project to demonstrate a model for a major eradication project.

With double the number of participants from last year, 53 people worked in teams to meet with 80 legislators and/or staff members to discuss important statewide issues. Participants also dropped off packets at 37 additional legislative offices, yielding full coverage of all Capitol offices. Teams covered twice as much ground as last year, when we visited 45 legislators/staff members and dropped information at 10 offices.

Topics discussed this year included Weed Management Area funding, the CA State Weed Plan (expected to be released soon) and CA Invasive Weeds Awareness Week in July. An info packet, including position statements and contact information, was left with each legislator/staff member we visited. Generally, attendees felt that the legislators/staff members they met with were engaged and interested.

We made several positive connections with legislators representing urban districts. A goal of Invasive Weed Day at the Capitol was to help legislators understand how invasive weeds affect all of California, including urban areas, wildlands and agriculture. Excellent discussions ensued with most legislators/staffers, including suggestions for creative avenues for funding via the budget process, proposition funds and legislative bills. We had a great debriefing at the end of the day and came up with several key action items for active follow-up: (1) making sure that invasive plant language is in bond measures that are being developed right now, (2) working with key legislators on the possibility of utilizing a spot bill to authorize additional funding for WMAs, and (3) exploring a select committee informational hearing on invasive weed issues. Members of CALIWAC are following up on the ideas generated over the next several weeks.

Photo by Bob Case

**Secretary A.G. Kawamura addressed attendees at the Regional Council for Rural Counties during the morning session of Invasive Weeds Awareness Day.**

Our message was heard – even in a difficult budget climate, we reminded legislators that invasive and noxious weeds don't stop spreading! Many legislators and staff members remembered CALIWAC from last year and were glad to see us returning with model yellow starthistle bouquets, invasive weed note pads and CALIWAC lapel pins in hand.

Thank you to the enthusiastic participants, the contingent that organized and pulled together the Day at the Capitol, and the sponsors and contributors that made the day possible. If you, too, would like the rare opportunity to educate agency and elected officials about your important local projects and to show support for weed work throughout the state, then be sure to join us next year to personally make this important issue known to people who can make change!

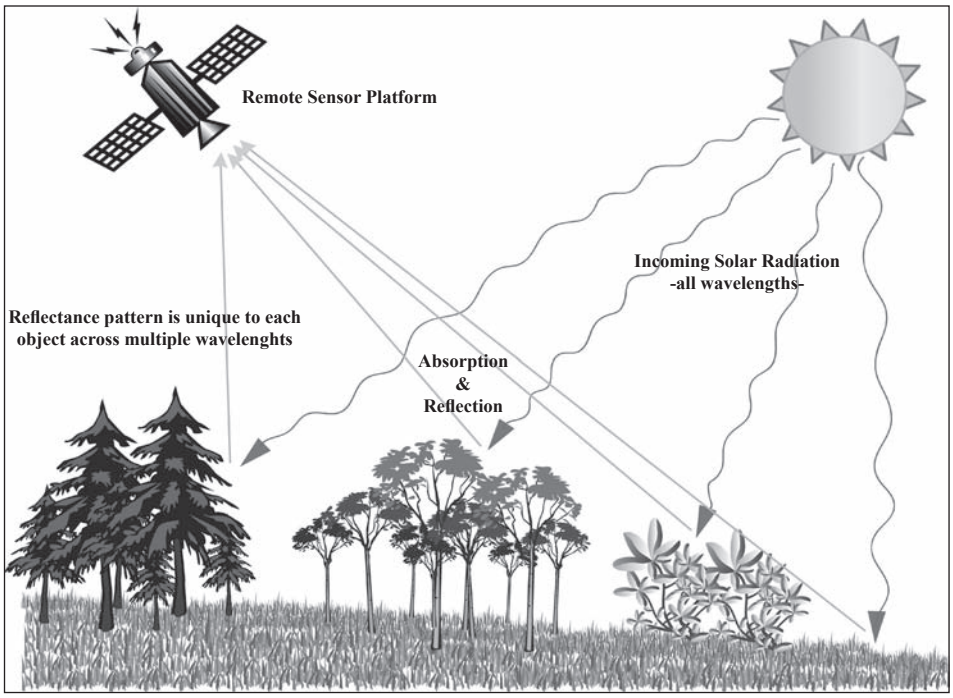
For more information, please contact Gina Skurka at gmskurka@cal-ipc.org. ◈

# Remote Sensing and Monitoring Invasive Weeds

By Max Jakovleski, CDFA

**WHAT IS REMOTE SENSING?**

Remote sensing is a general term describing the act of gathering data from a distance. This very basic definition implies that the human eye, the human ear, disposable cameras, radar, sonar and satellite sensor arrays will all fall under the classification of remote sensing devices. For ecologists, remote sensing is the art and science of acquiring information about the Earth's surface without being in direct physical contact with it. This involves sensing and recording reflected or emitted energy and processing, analyzing and applying that information. The fundamental feature of remote sensing is the detection of radiant energy emitted by various objects, whether it is in the form of acoustical energy (sound) or electromagnetic energy (light, infrared heat, ultraviolet and microwaves). In the last decade or so, advances in data capture and processing have begun to indicate a larger role for satellite imagery in the life sciences. However, as with any new technology, those who will ultimately use the data must be aware of the advantages and limitations of these methods.




**Remote Sensing diagram by Max Jakovleski.**

***Remote Sensing Images***

Light visible to the human eye is only a small portion of the larger electromagnetic (EM) spectrum. Electromagnetic radiation displays characteristics of both particles (photons) and waves; as a wave it has wavelength and frequency. Electromagnetic wavelengths are a function of the actual amount of energy contained in the photon: longer, lower-frequency radio waves constitute the less energetic portion of the EM spectrum, while very high-energy photons (e.g., x-rays) demonstrate the short wavelength and high frequency of the upper ranges. Essentially, these subtle variations in the energy stored in the oscillating electromagnetic field of photons produce the different colors of the visible light spectrum. Lower frequency visible light photons appear red, while higher frequency waves will appear violet or blue to the human eye.

***Spectral Signatures***

Variations in shape and composition of molecular structures in an object will ultimately determine whether a photon will be absorbed into the molecule, resulting in a slight energetic gain, or be "reflected," giving an object the color that we perceive. Spectral response patterns, unique to the molecular structure of the reflecting surface, have been shown to be relatively predictable. Purple loosestrife, *Lythrum salicaria*, for instance, reflects visible light within a wavelength range of 0.55 to 0.65 micrometers, while simultaneously absorbing all other visible wavelengths. If these values are shown to be a reliably distinct and constant characteristic of purple loosestrife, the weed may theoretically be identifiable by the display of this known spectral signature. Hyperspectral images are processed using a database of known reflectance values: each pixel that composes the acquired image from a spectral sensor is compared against a large number of known responses. If they match across all wavelengths, the pixel area can be classified as containing the object of interest.

***Hyperspectral Images***

Because identification of terrestrial objects must be as precise as possible, hyperspectral sensors intentionally over-sample the phenomena of interest. Hyperspectral data are spectrally robust; they provide multiple layers of spectral information to identify and distinguish between spectrally similar, but unique, materials. By including the entire visible light spectrum as well as a limited number of ultra-violet and infrared wavelengths, hyperspectral imagery has become the most comprehensive and reliable remote sensing sampling method. Consequently, hyperspectral imagery provides the potential for more accurate and detailed information extraction than is possible with other types of remotely sensed data. Using sophisticated software and reliable data, hyperspectral imagery may someday allow researchers to map different plant species from space with sufficiently precise accuracy, as long as the differences between spectral signatures of species are greater than the differences produced within a

single species' spectral signature affected by factors such as lighting, phenology, etc.

**REMOTE SENSING AS A WEED MANAGEMENT TOOL**

Applications for remote sensing data include target detection, material identification and mapping, and mapping details of surface properties. Regional weed managers will likely see an increasing frequency of surveying and assessment by remote sensing in the next few years. Modern remote sensing has found its way into the array of available surveying techniques currently being implemented to gauge the extent of the invasive species problem.

**The Nature Conservancy's superb, educational and entertaining website, "Remote Sensing and Invasive Species," is located at http://tncweeds.ucdavis.edu/remotesensing.html.**

Automated surveillance of invasive plant infestations is rapidly becoming a reality for many large-scale weed control programs. Methodologies developed by university researchers are being tested throughout the state, and implementation of hyperspectral technology is starting to coalesce into a potentially viable alternative to on-the-ground surveillance. Efficient and comprehensive surveys are of pivotal importance to weed management groups. Reliable data depicting the extent of infestations both before and after the treatment season is virtually essential to gauging both the spread of the infestation and the efficacy of abatement efforts; making this cheap and available to local weed control programs implies a remarkable strategic advantage.

***Limitations of Remote Sensing in Weed Management***

Remote sensing encompasses an entire array of different systems. Agricultural applications generally demand that a significantly large region be evaluated in order to render the computer-intensive processing phase of remote sensing efficient. Practical methods for large-scale surveillance often rely upon aerial and satellite-based sensors to meet these demands. Noxious weed abatement organizations, seeking to maximize efficacy while coping with budget constraints, will require that the cost, benefit, and accuracy of remote sensing methods outweigh traditional, on-the-ground surveillance. Because remote sensing is still expensive and difficult to employ, Weed Management Areas (WMAs) have not been able to benefit yet from the development of remote monitoring technologies.

The advantage of being able to survey large parcels of land is offset by the processing time needed to polish and evaluate the acquired data. To ensure maximum accuracy and precision, images acquired by aerial and orbital platforms are evaluated using what is referred to as 'Spectral Mixture Analysis' software. Algorithms then estimate species identification and percent coverage using known spectral values (CSTARS website). This time-consuming aspect of remote sensing requires the labor of well-trained computer technicians throughout the formatting and evaluation process – a process that, depending on the size of the data set, may take weeks or even months to complete.

"I think the largest limitation with remote sensing is currently that it is hard to get spectral signatures which are distinct enough, especially when variation is included," notes Barry Rice, Ph.D., with the Invasive Species Initiative at The Nature Conservancy. "Variation could result from factors like wind (causing the undersides of the leaves to show), lighting change (shadows vs. full sun), mixed vegetation types, or partial cover vs. full cover. Shading by overstory can also make it hard to track down weeds in forested settings. To use remote sensing efficiently, you must choose the season of data-gathering correctly, e.g. getting leafy spurge when it is flowering, or forest weeds in the fall when they have plenty of foliage but the trees have dropped their leaves."

The higher labor cost of trained GIS personnel versus the labor cost for manual surveying seems to be the largest obstacle inhibiting the implementation of remote sensing methods for invasive weed programs, though these costs may decrease in the future as the technology matures. Further, unlike the agricultural surveys that are most likely to see early implementation of remote sensing technology, weed management groups will need to pay for surveys of much larger and disparate areas, often spanning the landmass of a county or more. Most WMAs do not have the funds needed to finance comprehensive survey flights, and it will likely be awhile until costs decrease (or WMA budgets increase) to levels where this will be both affordable and efficient.

***Promising Advances in Remote Sensing***

Currently, trial studies involving weed management uses of remote sensing data are often done under the auspices of larger organizations and agencies that actively pursue noxious weed control. In cooperation with university researchers, agencies capable of funding hyperspectral analyses have pushed the capabilities of remotely-sensed surveillance to greater levels of accuracy and precision. A number of promising invasive species applications of remote sensing have emerged as a consequence.

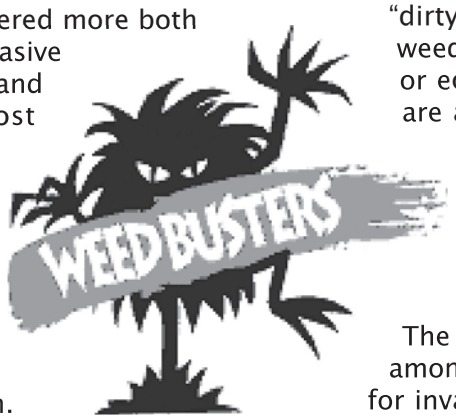
The California Department of Boating and Waterways (DBW) has an aquatic weed unit with the intimidating task of controlling water hyacinth and Brazilian egeria in the Sacramento/San Joaquin Delta region. In 2004, DBW collaborated with UC Davis' Center for Spatial Technologies and Remote Sensing (CSTARS) to perform the first remote

***Remote Sensing*** *continued on page 14...*

# Australia: A case study in strong weed invasion response

By Clare Aslan, CDFA

In the world of weed invasions, Australia stands out for two reasons: Australia has suffered more both economically and ecologically from invasive species than most other countries, and it has established some of the most savvy, proactive policies for dealing with the problem. A comparison of Australia's weed laws and programs with those of the United States reveals differences in both emphasis and strength of weed-related action, particularly in the areas of invasion prevention, public education, and interstate cooperation.




**"Woody Weed" is Australia's anti-weed mascot. The character appears on logos, advertisements, and literature associated with Weedbuster Week and is easily recognizable by children.**

Created in 1997, Australia's National Weeds Strategy provides universal guidelines for invasive weed prevention, mitigation and stakeholder collaboration across Australia. In 2001, the United States' National Invasive Species Council published a National Management Plan to confront invasive species. The stated priorities and goals of this plan are similar to those of Australia's document: both nations acknowledge needs for greater invasion prevention, detection, management, funding, research, and education. The major differences between the two countries are in the amount of action that has occurred as a result of the strategies' development. In the U.S., the National Management Plan carries the force of recommendation, rather than law, and both administration and budget changes have slowed its implementation.

The first goal of both Australia's National Weeds Strategy and the U.S.'s National Management Plan is the prevention of new weed problems. To that end, Australia has adopted a Weed Risk Assessment System. This so-called "clean list approach" assesses incoming plant species for invasive tendencies. If the species (or genus) is deemed harmless, it will be added to a permitted list, and any new introduction of the same taxon will be allowed without further review. Non-permitted species will be screened in an official risk assessment process, followed if necessary by more detailed analysis. Evidence of potential invasiveness at this point will result in exclusion of the species from Australia.

The United States utilizes the more common "dirty list approach." Under this strategy, weedy species known to cause economic or ecological damage in the United States are added to a prohibited list, and future introductions of such species are blocked or strictly regulated. This method is more reactive than the clean list, addressing only those species already proving problematic.

The clean list approach is praised as being among the more effective methods available for invasion prevention because it considers future risks and is capable of averting problems before they develop. However, a clean list approach can result in long backlogs of species requiring review and can be economically damaging to importers.

Public education efforts also illuminate the differences between Australia and the United States. A year-round national weed awareness program in Australia culminates in the annual Weedbuster Week. Foci of Weedbuster Week include the development of posters, brochures, and other public awareness literature, school-based activities, and the use of a weed campaign mascot, "Woody Weed." Weedbuster Week has been particularly effective in primary schools.

The National Weeds Strategy considers prioritization and awareness essential to increased early identification of weedy species. Australia therefore created a national noxious weeds list, currently containing 250 species. From nominations provided by managers throughout the country, a list of 20 Weeds of National Significance (WONS) was generated, identifying those species of greatest impact.

In order to involve the public in early detection efforts, weed identification cards called the WEEDeck were developed. The WEEDeck is designed for field use. Each card contains colored photographs of a priority weed, a full description of the distinguishing features of the species, and a map showing the weed's naturalized distribution and likely spread. These cards help the public and managers to assist in monitoring and early detection. Additionally, a New Plants Notification web page provides a forum for public reports of weed detection.

The U.S. National Management Plan emphasizes that public education in invasion problems is lacking, but most education is still state-specific, with some states conducting thorough and effective weed education campaigns and others doing little. The annual National Invasive Weeds Awareness Week emphasizes weed problems with Washington, D.C.-based events, but this effort is motivated by volunteers and nonprofit groups, rather than government.

The U.S. Federal Noxious Weeds List contains 94 species of concern. The USDA Animal and Plant Health Inspection Service (APHIS) maintains a PLANTS database recording the status and distribution of these species, and encourages the public to contribute information to it. No strong effort to train citizens in noxious weed identification has occurred, however, so the database receives little public input.

Finally, through national government support, all Australian states and territories have initiated or completed development of weed strategies. All states and territories have also designated a coordinating body with the responsibility for dealing with weed issues. Overarching, federal strategies to address each Weed of National Significance have been created.

State-by-state weed plans in the United States are less cohesive. While the 94 species on the Federal Noxious Weeds List are considered damaging to the country as a whole, other species of concern to particular states or regions are regulated in state laws or not at all. Some states have much stricter guidelines than those of the federal government. Hawaii, for example, utilizes a clean list approach much like that of Australia. Other states have restricted their invasive species legislation only to agricultural pests or to individual species of concern. The World Conservation Union has pointed out several problems with this lack of consistency between states. When adjacent states have different laws but similar environments, species prohibited in one state can move into it from the other with relative ease. Additionally, interstate commerce laws affect the strength of quarantines and prohibitions that can be issued by individual states if other states do not agree that particular species should be regulated.

As Australia's National Weeds Strategy continues to be implemented and reviewed, its strengths and weaknesses will become more apparent. According to Executive Order 13112, the U.S. National Management Plan must be updated every two years; thus, there will be substantial opportunity to learn from the successes and mistakes of Australia and other nations as the U.S. moves toward more effective weed response.◈

| Issue | Australia | United States |
|---|---|---|
| New Species Entry | Clean List Approach: Screen all incoming species and permit those that pass. Burden of proof on importers. | Dirty List Approach: Permit all incoming species not previously identified as problematic to pass. Burden of proof on public, scientists, managers, etc. |
| Strategy | National Weeds Strategy | National Management Plan (by the National Invasive Species Council). |
| Awareness | National Weeds Awareness Program | No coordinated federal awareness program exists, some small projects. |
| | Weedbuster Week, "Woody Weed" mascot | National Invasive Weeds Awareness Week, geared toward the education of politicians and the public. |
| | Weeds Australia Webpage: http://www.weeds.org.au/. | Federal Invasive Species Webpage: http://www.invasivespecies.gov. |
| Prioritization | The National Noxious Weeds List currently contains 250 species. | APHIS regulates those species on the Federal Noxious Weeds List, currently containing 94 species. |
| | Weeds of National Significance are identified and regulated with particular strength. | |
| Early Detection and Monitoring | WEEDeck weed identification cards. | Some states train citizens in weed identification, but no federal effort to do so is in place. |
| | New Plants Notification webpage. | Citizens detecting noxious weeds in new areas can submit reports to the PLANTS National Database maintained by the USDA (http://plants.usda.gov/). |
| Information-Gathering and Capacity-Building | The National Weeds Strategy created the Cooperative Research Centre for Australian Weed Management. | The National Management Plan directs the National Science Foundation and Smithsonian Institution to promote weeds research through grants. |
| | Standardized weed management courses are taught in universities. | |
| | National weed management training competencies have been developed. | |
| State/Territory Weed Strategies | All states and territories have developed strategies for weed control. The national government has helped them to do so. | Some states have clear weed strategies, while others do not. Some states target only specific species, while others have general or partial "clean list" rules. All states are subject to federal laws, but those laws are limited to a few species and situations. |

# Toolbox: TNC's Weed Information Management System (WIMS)

*TOOLBOX highlights new tools that might integrate well into local weed management tool boxes.* Noxious Times *does not specifically endorse tools featured, but rather strives to provide baseline data that will lend itself to further examination and research on the part of the user.*

## A Mapping and Data Management Tool for Invasive Species Programs

**What is WIMS?**

The Nature Conservancy's Weed Information Management System (WIMS) is a Microsoft Access-based relational database application that is designed to assist natural resource managers in managing data needed to accomplish their weed management projects. WIMS is used to map weed populations in the field and to record associated observations and weed management activities. To do this, WIMS keeps track of three types of data records: weed occurrences (with GPS point locations), assessments (size and status of the weed infestation to facilitate monitoring over time), and management treatments applied to those weed infestations.

Using WIMS, data can be easily exchanged between multiple users, exported in NAWMA (North American Weed Management Association) standards, and written to shapefiles, a format for mapping in a GIS program. A variety of reports can also be easily generated. WIMS works with a PDA handheld unit (such as the recommended Dell Axim X50) with a compatible GPS unit to capture data in the field. When using WIMS on a handheld unit with ArcPad, a site manager can use local aerial imagery and other GIS layers for assistance in mapping weeds, then bring the point or polygon data with attributes back to the office for upload into the Access database.

**Getting and Using WIMS**

Anyone (site managers, preserve stewards, ecologists, researchers, CWMAs, watershed groups, county and


state agencies, etc.) who is interested in invasive species management can use WIMS with a little training and technical support for initial set-up. Developed originally for TNC field staff, it is available free of charge to all interested users from the WIMS website at http://tncweeds.ucdavis.edu/wims.html. You do need to purchase your own PDA handheld, GPS unit, and ArcPad software, an investment of about $1,200.

Support and training may be hard to find at the moment, but that should change as usership grows and funding to support the users is increasingly identified. Training workshops are given periodically by TNC for their programs and can potentially be contracted by other groups. Team Arundo del Norte (TAdN) has teamed up with TNC to continue development of the application and use it in their ten-partner *Arundo donax* coordinated eradication program. There will be trainings given by TAdN in early summer and there are other training workshops scheduled in various locations by TNC over the spring and summer. To learn more about these possibilities, please visit the WIMS Message Board at http://ice.ucdavis.edu/wims and write a note to the WIMS Development Team.

**Advantages of and the Future of WIMS**

While there is no one "right" way to map weeds, it is certainly true that many of the same issues arise repeatedly when deciding how to record the field data and other basic support information for a weed control program. It can be very costly and time-consuming to develop such a data management system from scratch. In addition to saving these costs, an advantage to using a standardized system across multiple organizations is that data may be easily combined.

With increasing interest and use of the system, there is more likelihood that there will be ongoing improvements and additional features. A new version is already under development in a partnership between TNC, TAdN, and UC Davis to take WIMS into the future with new functionality and improved scalability, and to address issues such as the desire to use geodatabases and the need for cross-platform compatibility. The more groups work collaboratively on one tool-set, the more robust and reliable these tools become. The real work, after all, is out there controlling the weeds!

For more information, please contact: Deanne DiPietro, Sonoma Ecology Center/TAdN, sec-deanne@vom.com, or Mandy Tu, The Nature Conservancy, imtu@tnc.org. ◈

# ResourcesResourcesResources

## Grass and Grass-Like Weeds of California

*Using a computer-based diagnostics program for the identification of weedy grasses*

**Joseph M. DiTomaso** is a weed specialist at the University of California, Davis, with training in plant taxonomy and weed management. He is a co-author of Weeds of the Northeast and Aquatic and Riparian Weeds of the West.

A diagnostics program developed by Dr. Richard Old is the framework for the development of this interactive, computer-based identification guide for California weeds. Currently, the grasses and grass-like species portion of the program is completed and incorporates 206 species throughout California. This includes members of the Poaceae (181 species), Cyperaceae (19 species), Juncaceae (3 species), and Typhaceae (3 species). This program is also the basis of the WSSA 1000 Weeds of North America diagnostics program produced by Dr. Old.

The program is easy to use and allows the choice of any characteristic, vegetative or reproductive, for the identification of individual species. In many cases, it is possible to identify plants to species or to a couple of choices using only vegetative characteristics, dried plant material, or just a portion of the plant. In addition, the general region of the state where the plant is found can be selected to narrow the choice of species. The greater the number of characteristics used, the higher the probability that a specimen will be correctly identified to species.


In addition to identification characteristics, the program contains descriptions of all 206 weedy grasses and grass-like species in California, as well as multiple color photographs of each species, an illustrated glossary to the terminology used in the identification of grasses, a detailed tutorial to help users learn how the program works, and common names, scientific names, and up-to-date synonyms. This product costs $31 plus $3 shipping plus CA tax. The program is not compatible with Macintosh computers. It is a collaborative effort of XID Services. More information on the program can be found on www.cal-ipc.org or caweeds.com. ◈

## Restoration Resource Database

CENTER FOR INVASIVE PLANT MANAGEMENT

The Center for Invasive Plant Management (CIPM) has developed an online Restoration Resource Database (http://ag.msu.montana.edu/cipmresource/) to allow land managers to search for literature, books, handbooks, and websites on restoration, particularly related to invasive species. References from federal and state agencies, journals, conservation organizations, and others have been consolidated into one easy-to-access online database. A search provides users with a citation, a short description of the resource, and contact information and/or web links for obtaining the resource.

A component of the database is on-the-ground restoration project information provided by land managers. This information is intended to allow land managers to learn from each other's successes and failures, build collaborations, become aware of projects in their local area, and gain recognition for their restoration work.

This database is continually being expanded with new resources. Please check for updates regularly. Contact Monica Pokorny mpokorny@montana.edu if you would like to add a resource, or contact Erin Bard ebard@montana.edu if you would like to add your on-the-ground project information to our database.

Janet Clark, Director
Center for Invasive Plant Management
www.weedcenter.org ◈

***Remote Sensing*** *continued from page 9...*

sensing, hyperspectral survey of the aquatic and riparian weeds in the Sacramento/San Joaquin River Delta.

Submerged aquatic and riparian weeds are less than ideal subjects for spectral analysis due to turbid water (limited penetration of water by light, and algae and other debris covering the plants). As a trial study, the survey helped to develop and implement the Spectral Mixture Analysis software, as well as the algorithms and "rule making" associated with the delta survey, and will undoubtedly benefit future efforts to positively identify submerged weeds.

The Strategic Environmental Research and Development Program (SERDP) is a cooperative effort by the US Environmental Protection Agency, the Department of Defense and the Department of Energy to streamline the costs of regulatory compliance and resource stewardship. The multifaceted program includes a study on the application of CSTARS' hyperspectral imaging technologies to mapping of invasive plant species on military installations. In the study, five bases were selected in different eco-regions of the country to ensure sufficient variation among the problem weeds. So far, preliminary results suggest that the techniques being applied by CSTARS do not need to be specifically customized for each site. The development of a general analytical methodology would have the potential to lower the costs of remotely sensed surveys. SERDP expects that hyperspectral analysis will "dramatically increase the survey area while reducing associated costs by over 90%" (SERDP website).

In the last decade or so, advances in remote sensing have begun to indicate a larger role for satellite imagery in invasive weed surveying and monitoring. Whereas resources and funding for the technology are currently scarce, agencies involved in weed control are taking the first steps to making hyperspectral analysis available to a wider range of invasive plant managers. ◈

***Remote Sensing References:***
**Mulitsch, M. and S. Ustin**, 2003. *Mapping Invasive Plant Species in the Sacramento-San Joaquin Delta Region Using Hyperspectral Imagery*. Report from the Center for Spatial Technologies and Remote Sensing at the UC Davis, to the CA Dept. of Boating and Waterways.
**Purple Loosestrife Spectral analysis**: http://www.strom.clemson.edu/staff/jrpark/hsi.ppt.
**Barry A. Rice, Ph.D**. Invasive Species Initiative, The Nature Conservancy, http://tncweeds.ucdavis.edu.
**AG/20/20**: http://www.esad.ssc.nasa.gov/ag2020.
**CSTARS**: http://www.cstars.ucdavis.edu.
**SERDP**: http://www.serdp.org.

***New WMAs*** *continued from page 5...*

Multiple goals include: (1) identifying invasive and noxious weed species of concern within the county, above and beyond the obvious *Arundo donax*, tamarisk, pampas grass, yellow starthistle, castor bean, etc… (2) developing a strategy to eradicate and protect against further infestations of all invasive and noxious weed species, (3) developing a public outreach and educational program for countywide dissemination of information, (4) gathering all available GIS mapping data for plants, especially invasive and noxious weeds, and developing a strategy to fill all the data gaps, and (5) expanding on the VCRCD website (vcrcd.org) to include a new site for the WMA. The list goes on but those are a few of the first and primary goals. Potential projects include building on the programmatic EIR/EA and permits being developed by the Arundo Task Force and starting to identify stream-restoration projects that will enhance fisheries opportunities. The VCWMA will also be working with the Cattlemen's Association to remove rangeland invasive and noxious species and protect against erosion.

Contact: Peggy Rose, Ventura County Resource Conservation District, P.O. Box 147, 3380 Somis Rd., Somis, CA 93066. Phone: (805) 386-4685, Fax (805) 386-4890, email: prose_vcrcd@prodigy.net.

**Santa Ana River and Orange County WMA - Kerwin Russell**

The Santa Ana River and Orange County Weed Management Area (SAROCWMA) covers the 2,600 square mile Santa Ana basin and the coastal region of Orange County. This WMA formed in 2004 through the state WMA program, with primary objectives of controlling perennial pepperweed outliers and other incipient and localized weed invasions. The SAROCWMA program is intended to complement and extend several large, well-funded programs to remove arundo and tamarisk from the Santa Ana River watershed. The group started in 2004 with no budget, but has recently been awarded a grant through the California Department of Food and Agricluture (CDFA). Because SAROCWMA did not receive start-up funding from CDFA, control treatments to date have been limited to volunteer work on perennial pepperweed and castor bean in the Riverside area and on dispersed arundo in southern Orange County.

Current members are the County of Riverside Ag Commissioner, California Native Plant Society (Orange-Riverside-San Bernardino County Chapters), Riverside-Corona RCD and the Santa Ana Watershed Association. Several members of SAROCWMA have extensive experience running large weed eradication programs and carrying out public outreach. In particular, Riverside-Corona RCD staff will play an active role in managing the projects and collecting regional information from its partners in the Santa Ana Watershed Association, Santa Ana Watershed Project Authority, the WMA and the other three regional RCDs. The SAROCWMA will use contributed services from partners for its matching contribution. The group currently has a pepperweed treatment and control program and is in the process of updating both digital and conventional maps for tracking arundo, pepperweed, castor bean and tamarisk. The SAROCWMA will be doing a pepperweed control, updating arundo digital maps and producing two brochures over the next few years.

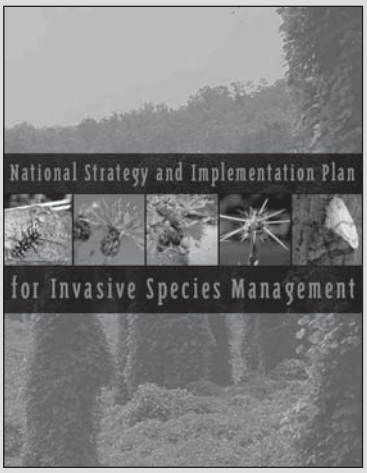
Contact: Kerwin Russell, Russell@rcrcd.com, (951) 683-7691 ext. 203.

**Humboldt – Del Norte WMA - Michelle Forys**

The Humboldt County WMA recently revised its MOU to include more signatories that were interested in becoming part of a Weed Management Area. One of the interested parties was Del Norte County. The WMA coordinator states that, "We are very excited to have Del Norte County and other large property owners involved with the Humboldt -Del Norte WMA (HDNWMA) because, as many of us know, invasive weeds do not recognize boundary lines."

Contact: Michelle Forys, HDNWMA Coordinator, 707-498-6398, mforys@humboldt1.com. ◈

# Forest Service National Strategy and Implementation Plan for Invasive Species Management




The Forest Service has launched a national strategy to prevent and control invasive species and non-native plants in the United States. The goal: reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species across all landscapes and ownerships.

In response to the ever-present threat of invasive species, a multidisciplinary team of specialists, managers, and researchers has worked together to produce a *National Strategy and Implementation Plan for Invasive Species Management* to guide the U.S. Department of Agriculture Forest Service as it takes on the invasive species challenge.

The national strategy is intended to identify a strategic direction for Forest Service programs spanning Research and Development, International Programs, State and Private Forestry, and the National Forest System. It begins with a short description of the magnitude of the problem, characterizing invasive species as a "catastrophic wildfire in slow motion" because of the seriousness of the problem and its impacts, which know no boundaries. The plan focuses on four key elements: preventing invasive species before they arrive; finding new infestations before they spread and become established; containing and reducing existing infestations; and rehabilitating and restoring native habitats and ecosystems. The cornerstone of the strategy is cooperative conservation: working with public and private organizations through partnerships.

The Forest Service's role results from its ability to have national impact, including the agency's (1) broad existing authorities and responsibilities assigned to the Chief of the Forest Service, (2) expertise in land management, research, entomology, pathology, ecology, and countless other specialties, (3) presence across the country and around the world, and (4) relationships with every State and territorial agency with responsibility for invasive species. The plan will use one of the new tools developed under the Healthy Forests Initiative – an early warning system to help land managers detect new invasives. Title VI of the 2004 Healthy Forests Restoration Act called for the Forest Service to develop such a system to improve its detection and response abilities to ecological disturbances across the nation.

For more information, please visit the Forest Service website www.fs.fed.us. ◈

# Announcing the NRPI Brochure

## *"Celebrating Ten Years of Watershed Success Stories in California"*

**This Fall, the Natural Resource Projects Inventory (NRPI) will be distributing a color brochure using your project data!**

The CalWeed Database has been integrated into NRPI. NRPI is now the most comprehensive statewide database with 5,300 natural resource projects to date and is searchable in the Internet. It gets over 1,000 hits a day from resource managers, private citizens, students, people looking for volunteer opportunities, and other states and countries. The projects include watershed conservation, restoration and noxious weed eradication, assessment, planning and scientific studies, all funded by federal, state and private grants.

The brochure will highlight projects in a regional context including: conservation, acquisition, mitigation, monitoring, education outreach, restoration, assessment, planning, capacity building, and exotic species removal. Projects will be spatially displayed in these hydrologic regions: North Coast, San Francisco Bay, Central Coast, South Coast, Sacramento River, North Lahontan, South Lahontan, San Joaquin River, Colorado River, and Tulare Lake.

UC Davis' Information Center for the Environment (ICE) will distribute brochures to agencies, at public meetings and conferences, and it will be available online or on CD – it's a wonderful opportunity to showcase your successes!

**How to view and edit your project in NRPI**

Go to www.ice.ucdavis.edu/nrpi, then to the "Add/Edit" page and log in. This will pull up your project(s) and you may edit and add projects from there. Most importantly, we would like to have completed sections for: contact info, funding info, monitoring, goal and standards achieved and the NPS Section if applicable.

**Is your project already in NRPI?**

In an effort to streamline data and information sharing, we have received projects from the Prop 40 Database, CalFed Watershed Program, DFG's California Habitat Restoration Projects Database, the State Water Resources Control Board and others. These projects in many cases do not list a Primary Contact but rather the Funding Program's contact name for the NRPI database. Go to www.ice.ucdavis.edu/nrpi and Query by Project Title, Contact Name or Funding Program. If you see your project and wish to edit it, please log in using the name and email listed. Update the Primary Contact on the Add/Edit page and continue with other sections. Remember, the Primary Contact should be the person who knows the most about the project and can answer questions.

**Send us your stories and pictures!**

Finally, after editing and submitting your project(s), please send us your success stories with high quality digital photos. We would like to emphasize collaborative approaches in a regional context.

For more information, please contact: Kevin Ward, kcward@ucdavis.edu, 530-752-2378 (ph), 530-752-3350 (fax). ◈

# Upcoming Events

**June 15-16, 2005**
**Invasive Plant School**
*San Diego, CA*
Taught by Carl Bell and Nelroy Jackson
Contact: Carl Bell at cebell@ucdavis.edu

**June 25-26, 2005**
**Jepson Herbarium Classes: Thistles: The Good, The Bad, and The Beautiful**
*Field regions in the greater Bay Area*
Taught by Dean Kelch
http://ucjeps.berkeley.edu/jepwkshp.html

**October 4-6, 2005**
**7th Biennial State of the Estuary Conference**
*Oakland, CA*
www.abag.ca.gov/events/estuary

**October 19-22, 2005**
**SERCAL's 12th Annual Conference**
**Restoring the Heart of California**
*The Pines Resort & Conference Center*
*Bass Lake, CA www.basslake.com*
www.sercal.org

**Advertise your upcoming events! Notify us at noxtimes@cdfa.ca.gov**

## The 14th Annual Cal-IPC Symposium

Prevention Reinvention:
Protocols, Information and Partnerships to Stop the Spread of Invasive Plants

Cal-IPC

**October 6-8, 2005**

Bell Memorial Union
California State University - Chico

The Symposium is the state's biggest gathering of wildland weed workers, and gives members an unparalleled opportunity to exchange insights and approaches.

**www.cal-ipc.org**

*California Invasive Weeds Awareness Week*

*July 18 - 24, 2005*

*Contact your local Weed Management Area for information on events in your area.*

*www.cal-ipc.org*

**View the LATEST edition of the *Noxious Times* on the website BEFORE it arrives in your mailbox! www.cdfa.ca.gov/noxtimes**

California Interagency Noxious Weed Coordinating Committee
Noxious Times
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